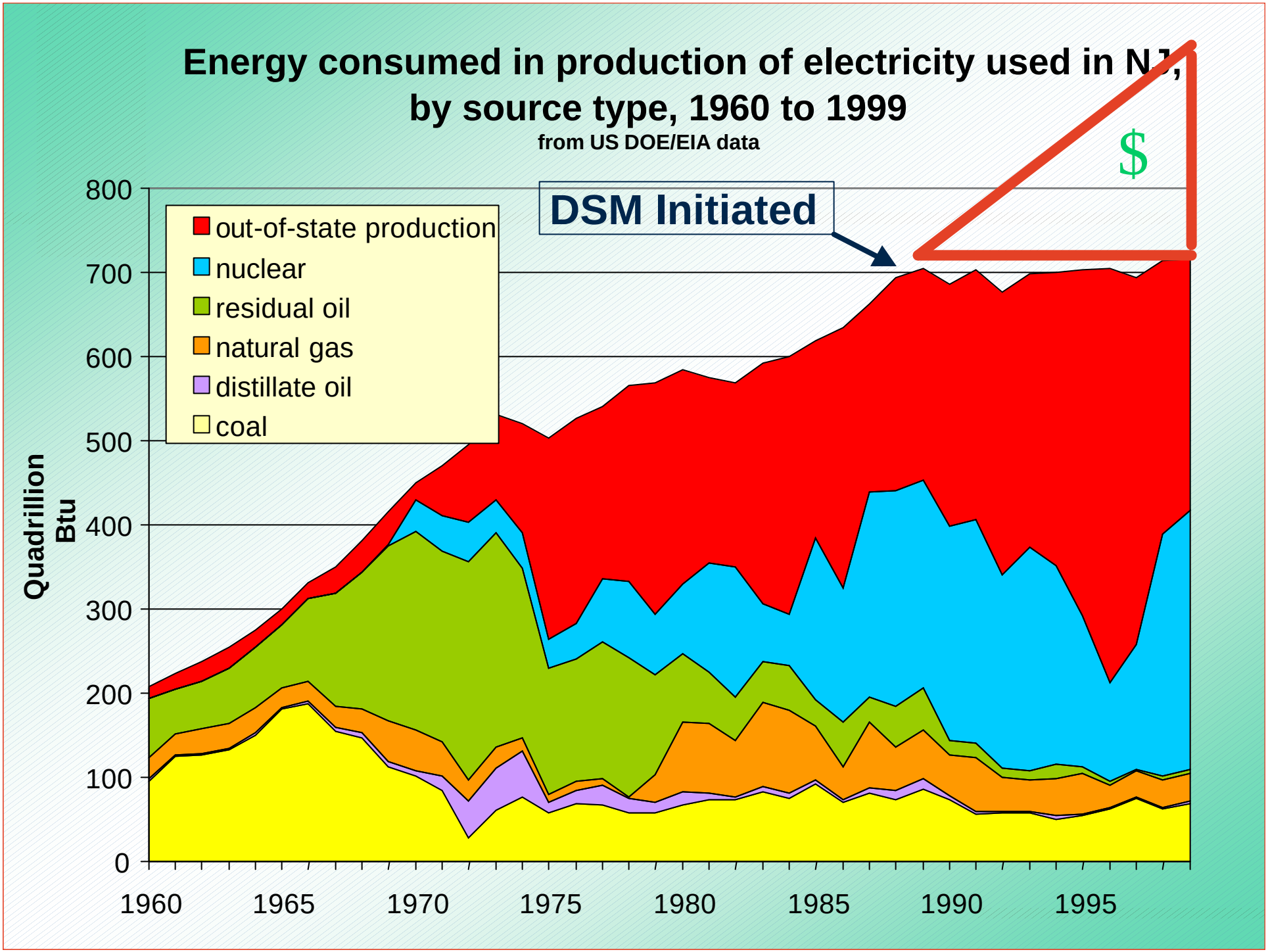
Regional & State Experience with Using Renewable Energy

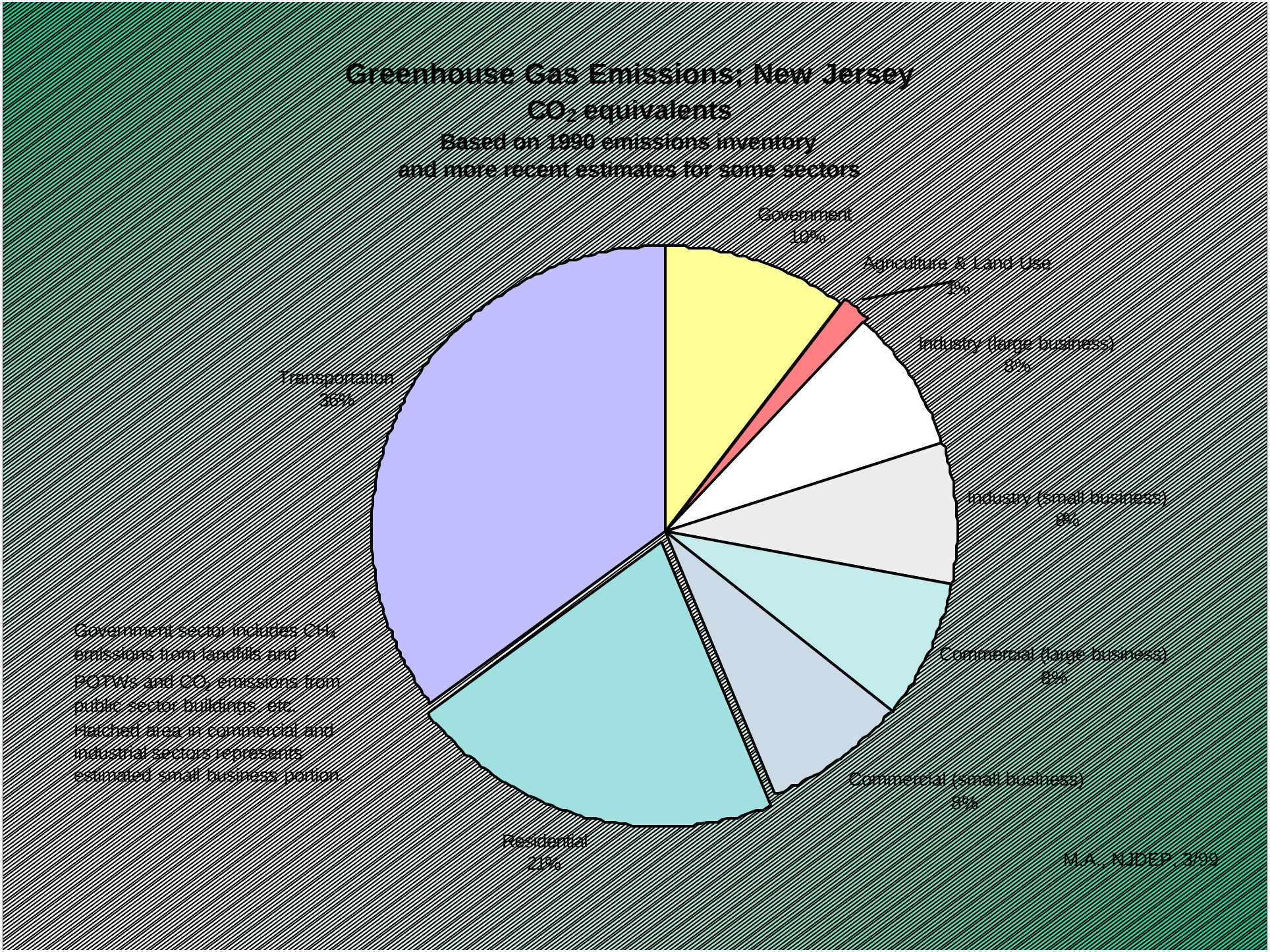
Achieving Air Quality Goals

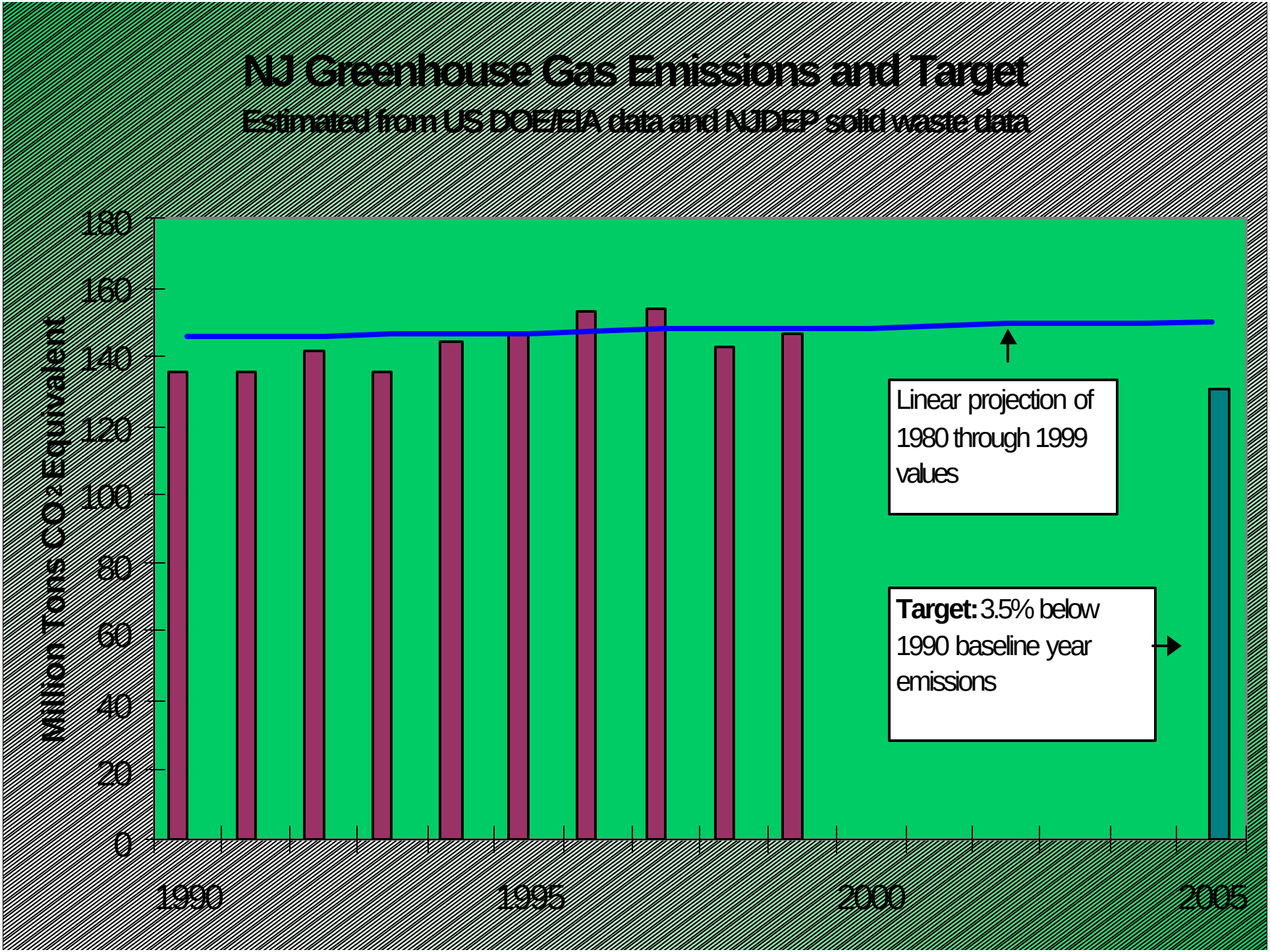
Mike Winka, Administrator

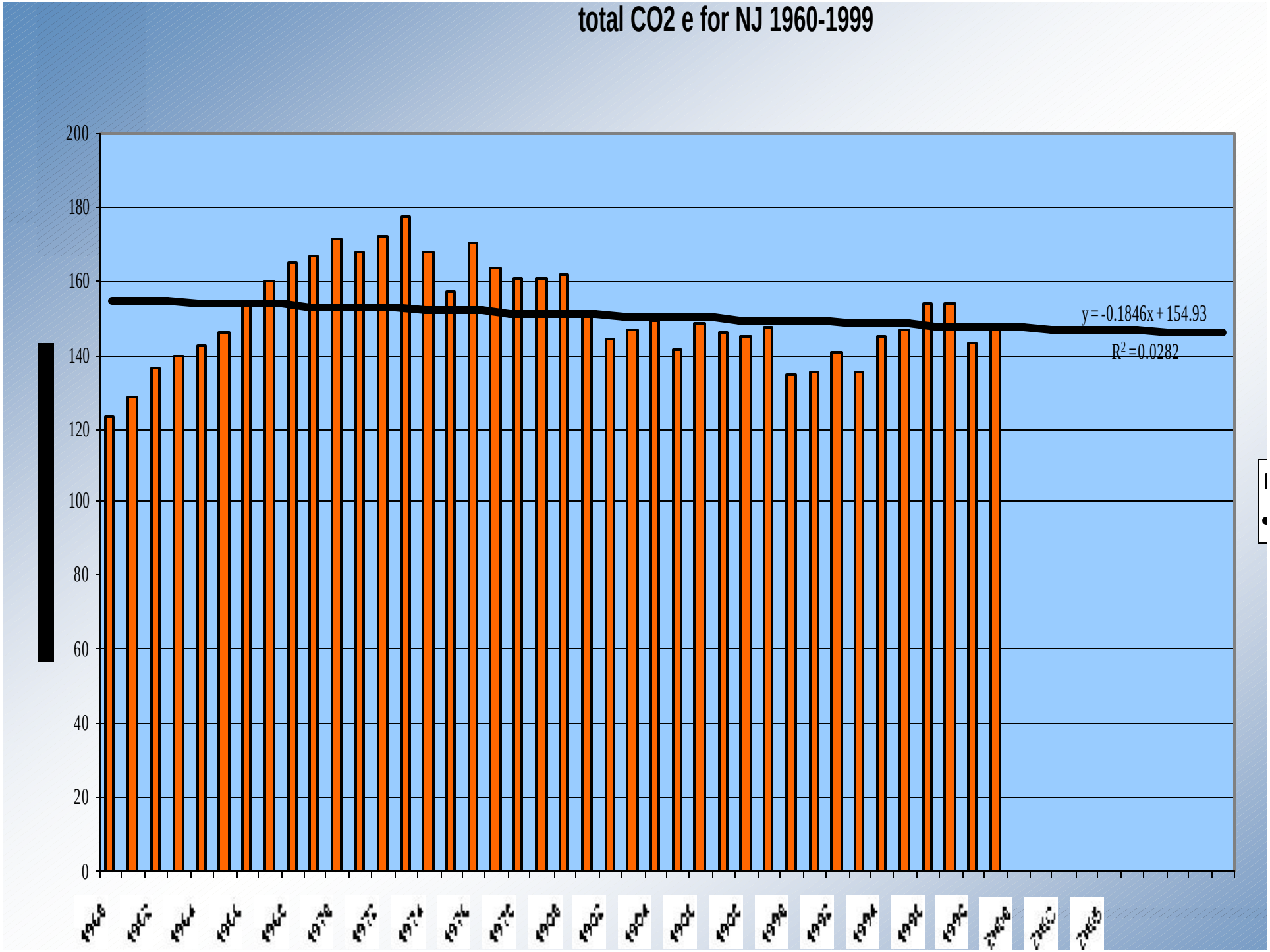
NJDEP - DSRT - OITMD

NREL Energy Analysis Forum
Lakewood, CO
May 29-30, 2002


Energy consumed in production of electricity used in NJ, by source type, 1960 to 1999
from US DOE/EIA data
DSM Initiated
$
out-of-state production
nuclear
residual oil
natural gas
distillate oil
coal
Quadrillion Btu
800
700
600
500
400
300
200
100
0
1960
1965
1970
1975
1980
1985
1990
1995


Greenhouse Gas Emissions; New Jersey
CO_2 equivalents
Based on 1990 emissions inventory
and more recent estimates for some sectors
Government
10%
Agriculture & Land Use
1%
Industry (large business)
8%
Industry (small business)
8%
Commercial (large business)
8%
Commercial (small business)
8%
Residential
21%
Transportation
36%
Government sector includes CH_4 emissions from landfills and POTWs and CO_2 emissions from public sector buildings, etc.
Hatched area in commercial and industrial sectors represents estimated small business portion.
M.A., NJDEP, 3/99


NJ Greenhouse Gas Emissions and Target
Estimated from US DOE/EIA data and NJDEP solid waste data
Million Tons CO2 Equivalent
180
160
140
120
100
80
60
40
20
0
1990
1995
2000
2005
Linear projection of 1980 through 1999 values
Target: 3.5% below 1990 baseline year emissions


total CO2 e for NJ 1960-1999
200
180
160
140
120
100
80
60
40
20
0
y = -0.1846x + 154.93
R2 = 0.0282

Life-cycle Approch
Avoided Environment Impacts and Costs

	Avoided cost	Benefits	Total
	$/kWh	$/kWh	$/kWh
Air	$0.025	$0.006	$0.031
Water con	$0.0045		$.0045
Waste use	$0.00019		$0.00019
Wastewater	$0.00035		$0.00035
Land use	$0.0001		$0.0001
Waste	$0.00425	??????	$0.00425
Total	$0.0344	$0.006	$0.0404

Societal Benefits Charges
Utilities EE and RE Programs

3 –year $358 million energy efficiency and renewable buy-down program

75% for Energy Efficiency and 25% for Renewable Energy

1,8240,000 M tons of CO2

5,325 M tons of NOx

8,510 M tons of SO2

0.04 M tons of mercury

Financial Incentives for Sustainability Projects

School Construction Act

- $138 sq.ft. (approx.) for 40% eligible cost (100% for Abbott districts)

Clean Energy Program

- Utility Sponsored www.njcleanenergy.com & www.njsmartstartbuildings.com

$358 million rebates over the next 3 years with more in the future. Energy efficiency ($268.5) & renewable energy ($89.5) technologies eligible.

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Kearny High School's Solar System

1,140 solar panels generating 40 kws of electricity

Cost: $279,625

Grants - 167,775 BPU buydown 60%

- 82,908 Institution Conservation Program

School's cost: $28,942

Annual savings - $12,000

Payback period – 9 years

2--3 years (thanks to grants)

Next steps: Involve science classes

Contact: Tom Macfie, Director of Plant Operations

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Dollars of Economic Output per Pound of Greenhouse Gas Emissions

from USDOE/EIA, USEPA, NJDEP, and USDOC/BEA data